IN THE CLAIMS

The following provides the current status of the claims.

1. (Original) A process for the manufacture of structures comprising:

a. mixing an aqueous solution of a metal salt and a chemical control agent to form an intermediate solution;

b. evaporating the intermediate solution to form an intermediate product wherein the evaporating is conducted in a controlled temperature process at a temperature higher than the boiling point of the solution but lower than the temperature where significant crystal growth occurs;

c. mixing the intermediate product with a binder to form a mixture;

d. drying the mixture to form a dried mixture;

e. pressing the dried mixture into a desired shape;

f. crystallizing by raising the temperature to a range between about 500° C. to about 1300° C. for a period of time from about 2 to about 24 h and thereafter by cooling to room temperature; and,

g. washing the product of step f.

2. (Original) The process of claim 1 wherein the metal forming the metal salt can be selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Al, Sn, Sb, Pb, Bi, and mixtures thereof.

3. (Original) The process of claim 1 wherein the metal salt is selected from the group consisting of titanium oxychloride or zirconium oxychloride.

4. (Original) The process of claim 1 wherein the metal salt is titanium oxychloride and wherein during the crystallizing step the temperature is raised to a range between about 800° C to about 1200°C.

5. (Original) The process of claim 1 wherein the metal salt is zirconium oxychloride and wherein during the crystallizing step the temperature is raised to a range between about 1000° C to about 1300°C.

6. (Original) The process of claim 1 wherein the chemical control agent is selected from the group consisting of chloride salts, carbonate salts, fluoride salts, sulfate salts, silicate salts, borate salts and phosphate salts of sodium, potassium, lithium, aluminum, tin, and zinc and phosphoric acid.

7. (Original) The process of claim 1 wherein the evaporation step is conducted at a temperature between about 100° C. and about 400° C.

8. (Original) The process of claim 1 wherein the evaporating is conducted by spraying.

9. (Original) The process of claim 8 wherein the intermediate product comprises a plurality of hollow spheres and parts of spheres.

10. (Original) The process of claim 9 wherein the diameter of the spheres is between about 1 μm and about 100 μm.

11. (Original) The process of claim 9 wherein the thickness of the sphere is between about 30 nm and about 5000 nm.

12. (Original) The process of claim 1 wherein the binder is selected from the group consisting of inorganic binders, organic binders, and mixtures thereof.

13. (Original) The process of claim 1 wherein the washing is conducted by successively immersing the product in water, heating it to boiling, and keeping it at the boiling point for a period of time from about 5 min to 2 h.

14. (Original) The process of claim 1 wherein a surface treatment additive is mixed with the intermediate product and binder.

15. (Currently amended) A titanium dioxide structure made according to the process of claim 1 characterized by a porosity in the range of about 30% to about 70% and a thermal stability such that less than 5% dimensional change occurs upon holding the structure at 1100° C. in an oxidizing atmosphere for 8 h.

16. (Original) The structure of claim 15 wherein the structure comprises needle-shaped particles that are strongly bound together.

17. (Original) A structure made according to the process of claim 1 wherein the structure has a porosity in the range of about 30% to about 70%.

18. (Original) The structure of claim 17 wherein the structure has a thermal stability such that less than 5% dimensional change occurs upon holding the structure at 1100° C. in an oxidizing atmosphere for 8 h.

19. (Original) The structure of claim 17 comprising a plurality of individual particles forming the structure wherein the particles have a size in a longitudinal direction from about 0.1 to about 50 micron.

20. (Original) The structure of claim 19 wherein the particles have a width to length ratio from about 1:1 to about 1:20.